

REMARKS

In response to the Office Action dated March 14, 2002, claims 4 and 16 has been amended. Claims 1-20 are active in this application. The Office Action indicated that claims 8-15 and 17-20 are allowable if rewritten in independent form. Based on the above Amendments and the following Remarks, Applicants respectfully request that the Examiner reconsider the outstanding rejections and they be withdrawn.

Rejections Under 35 U.S.C. §102

In the Office Action, claims 1-6 and 16 have been rejected under 35 U.S.C. §102(e)(b) for being anticipated by U. S. Patent No. 6,229,516 issued to Kim, et al. (“Kim”). This rejection is respectfully traversed.

Independent claim 1 recites “A liquid crystal display (LCD), comprising: a first gate line block ... scanning in a *first direction*; a second gate line block ... scanning in a *second direction*; ... wherein *the first direction is opposite to the second direction* ...”.

In this regard, the Examiner alleged that this claimed feature is shown in Fig. 2 of Kim. This assertion is respectfully disagreed. According to Kim, the LCD panel is divided into upper and lower portions, and upper gate lines G_1 to G_m and lower gate lines G_{m+1} to $2G_m$ are provided to the upper and lower portions, respectively. However, as shown in Figs. 8 to 12, the scanning signals are provided such that the upper gate lines are scanned in a sequential order from G_1 to G_m and the lower gate lines are scanned also in the same sequential order from G_{m+1} to $2G_m$.

[According to Kim, the upper and lower gate lines are scanned in the *same direction*, not the opposite directions as recited in claim 1.] Accordingly, Applicants respectfully submit that Kim fails to teach or suggest the claimed feature of “a first gate line block ... scanning in a *first*

direction; a second gate line block ... scanning in a second direction; ... wherein the first direction is opposite to the second direction ...”, as recited in claim 1. This is further evidenced by the fact that the Office Action fails to point out where in Kim teaches or suggests this missing claimed feature.

Independent claim 4 recites “A liquid crystal display (LCD), comprising: an LCD panel including: a first gate line block having a plurality of first gate lines; a second gate line block having a plurality of second gate lines, said second gate line block formed beneath said first gate line block; ... a first gate driver supplying scanning signals to the gate lines of said first gate line block; *a second gate driver supplying scanning signals to the gate lines of said second gate line block in a scanning direction opposite to that of said first gate driver; ...”.*

As previously mentioned, Kim fails to teach or suggest the claimed feature of “a second gate driver supplying scanning signals to the gate lines of said second gate line block in a scanning direction opposite to that of said first gate driver”, as recited in claim 4.

Independent claim 16 is a method claim directed to how to scanning signals to the first and second gate lines. Particularly, claim 16 recites “A method for driving a liquid crystal display (LCD) including a first gate line block having *a plurality of first gate lines*; a second gate line block formed beneath the first gate line block and having *a plurality of second gate lines*; ..., comprising the steps of: providing sequentially scanning signals to the first gate lines ...; providing sequentially scanning signals to the second gate lines ... *in a scanning direction opposite to that of the first gate line block*; ...”.

In this regard, as previously mentioned, Kim fails to teach or suggest the claimed feature of “providing sequentially scanning signals to the second gate lines ... *in a scanning direction opposite to that of the first gate line block*”, as recited in claim 16.

Applicants respectfully submit that independent claims 1, 4 and 16 are patentable over Kim. Also, claims 2, 3, 5 and 6, that are dependent from claim 1 and 6, would be also patentable at least for the same reason. Accordingly, Applicants respectfully request that all the rejections and objections over claims 1-6 and 16 be withdrawn.

Rejections Under 35 U.S.C. §103

In the Office Action, claim 7 has been rejected under 35 U.S.C. §103(a) for being unpatentable over Kim in view of U. S. Patent No. 5,093,655 issued to Tanioka, *et al.* (“Tanioka”). This rejection is respectfully traversed.

Claim 7 is dependent from claim 4, which is believed to be patentable over Kim. Particularly, Kim fails to teach or suggest the claimed feature of “a second gate driver supplying scanning signals to the gate lines of said second gate line block in a scanning direction opposite to that of said first gate driver”.

In this regard, the secondary reference to Tanioka is directed to visually compensating the flickers of the entire surface of the LCD panel by reversing the polarity of the picture (data) signals in adjacent columns. However, Tanioka fails to cure the deficiency from the teachings of Kim. Particularly, Tanioka is silent as to driving the LCD panel to upper and lower gate line blocks and supplying scanning signals to the gate lines of the upper and lower gate lines blocks in opposite directions. Thus, it would not have been obvious to combine the teachings of the applied references to arrive at the claimed invention.

Accordingly, Applicants respectfully submit that claim 7 is patentable over Kim and Tanioka, and request all the rejections and objections over claim 1 be withdrawn.

Other Matters

In this response, claims 4 and 16 have been amended to correct the informalities therein.

CONCLUSION

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete response has been made to the outstanding Office Action and, as such, claims 1-20 are in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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APPENDIX

The "marked-up" version of the amended claims is as follows:

4. (Amended) A liquid crystal display (LCD), comprising:
an LCD panel including:
 - a first gate line block having a plurality of first gate lines;
 - a second gate line [blockhaving] block having a plurality of second gate lines,
said second gate line block formed beneath said first gate line block;
 - a plurality of first data lines crossing and separated from the first gate lines of said
first gate line block;
 - a plurality of second data lines crossing and separated from the second gate lines
of said second gate line block; and
 - a plurality of pixels formed by areas defined by the gate lines and the data lines,
and arrayed in a matrix pattern, the pixels having switching elements coupled to the gate
lines and the data lines, and common electrodes to which common voltage is supplied;
 - a first data driver supplying data voltages, which contain image signals, to the first data
lines;
 - a second data driver supplying data voltages, which contain image signals, to the second
data lines;
 - a first gate driver supplying scanning signals to the gate lines of said first gate line block;
 - a second gate driver supplying scanning signals to the gate lines of said second gate line
block in a scanning direction opposite to that of said first gate driver;

a first frame memory that receives and writes external image signals in synchronization with the write clock signals and outputs the image signals to the first data driver in synchronization with the read clock signals; and

a second frame memory that receives and writes external image signals in synchronization with the write clock signals and outputs the image signals to the second data driver in synchronization with the read clock signals.

16. (Amended) A method for driving a liquid crystal display (LCD) including a first gate line block having a plurality of first gate lines; a second gate line block formed beneath the first gate line block and having a plurality of second gate lines; a plurality of first data lines crossing and separated from the first gate lines of the first gate line block; and a plurality of second data lines crossing and separated from the second gate lines of the second gate line block, comprising the steps of:

providing sequentially scanning signals to the first gate [line] lines of the first gate line block;

providing sequentially scanning signals to the second gate [line] lines of the second gate line block in a scanning direction opposite to that of the first gate line block; and

supplying data voltages, which contain image signals, to the first and second data lines so that the data voltages are supplied to the pixels coupled to the gate lines to which the scanning signals are provided.